

Notice of Allowability

Application No.

10/608,840

Examiner

Charles D. Garber

Applicant(s)

AMLIN, DAVID J.

Art Unit

2856

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 10/27/2003.
2. ☒ The allowed claim(s) is/are 1.
3. ☐ The drawings filed on _____ are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
6. ☒ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
(a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
(b) ☒ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|---------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|
| 1. <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____. |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date _____ | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____. |

Drawings

The drawings are objected to because the figure is not labeled as such. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

The application has been amended as follows:

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Delete "References Cited" section on page 1 of the specification.

On page 5, line 22 of the specification change "Attached" to --The following--.

Add the following table after page 6, line 6 of the specification

Table

Wintertime Fuel

Temperature (°F)	Time to fill (14" H ₂ O)	Vapor Space (Gallons)	Max. Pressure Decay (H ₂ O)
60	8.7	0.529	12.0
60	11.0	1.057	12.0
60	13.2	1.586	12.0
60	15.5	2.114	12.0
60	17.8	2.643	12.0
60	20.0	3.171	12.0
60	22.3	3.700	11.8
60	24.6	4.228	11.3
60	26.8	4.757	10.9
60	29.1	5.285	10.4
60	31.4	5.814	10.0
60	33.6	6.342	9.6
60	35.9	6.871	9.2
60	38.2	7.399	8.9
60	40.5	7.928	8.5
60	42.7	8.456	8.2
60	45.0	8.985	7.8
60	47.3	9.513	7.5
60	49.5	10.042	7.2
60	51.8	10.570	6.9
60	54.1	11.099	6.7
60	56.3	11.627	6.4
60	58.6	12.156	6.1
60	60.9	12.684	5.9
60	63.1	13.213	5.6
60	65.4	13.741	5.4
60	66.5	14.000	5.3
60	70.8	15.000	5.0
60	75.1	16.000	4.7
60	79.4	17.000	4.4
60	83.7	18.000	4.1
60	88.0	19.000	3.9

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60	92.3	20.000	3.7
60	96.6	21.000	3.6
60	100.9	22.000	3.4
60	105.2	23.000	3.2
60	109.5	24.000	3.1
60	113.7	25.000	3.0
60	118.0	26.000	2.9
60	122.3	27.000	2.8
60	126.6	28.000	2.7
60	130.9	29.000	2.6
60	135.2	30.000	2.5

The following is an examiner's statement of reasons for allowance:

Cook et al. (US Patent 5,146,902) discloses a method for leak-testing a motor vehicle fuel tank and associated evaporative emissions control system, including a blower motor 22 (a compressed air source) and pressure switch (a pressure transducer supplying a signal at two set pressures) that are part of a pressure sensing module 22 with a line connecting to the fuel tank 16. The module pressurizes the system to a predetermined start pressure (same as a specified pressure, see claim 1) detected by the pressure switch.

While Cook '902 does not expressly teach pressurizing to 14 inches of water (about .45 pounds per square inch) above atmospheric pressure it would have been obvious to one having ordinary skill in the art at the time the invention was made to pressurize the system to 14 inches of water, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Cook lacks the use of look-up tables to determine an appropriate pass-fail decision cutpoint. However, Kuroda et al. (US Patent 5,299,545) teaches a look up

table shown in figures 7 and 8 for determining a test value threshold in a pressure decay leak test in order to account for the effect of fuel temperature on volatility which may confuse test results when conditions vary. It would have been obvious to one having ordinary skill in the art at the time the invention was made to look up a corrected test value based on fuel temperature in order to evaluate the presence of a leak even during wide variations in temperature effecting fuel volatility.

Though Kuroda teaches monitoring a corrected change in time for fixed pressure drop to determine leak state Cook et al. (US Patent 5,297,529) teaches monitoring a change in pressure corrected for fuel volatility (column 6 lines 6-45 especially lines 26-31). It would have been obvious to one having ordinary skill in the art at the time the invention was made to monitor pressure over a fixed time in order to advantageously limit the time which might otherwise be unlimited.

While Cook '902 does not expressly teach measuring the drop over a 120 second period it would have been obvious to one having ordinary skill in the art at the time the invention was made to measure the drop over a 120 second period, again since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art.

Cook '902 further discloses the use of logic to determine whether a vehicle has a leak sufficiently large that pressurization is impossible and the vehicle is deemed to fail the test (abstract regarding "gross leak" initial test").

Communication lines 36 and 38 are between the computer 18 and pressure sensing module 20 are considered to be an electronic interface between the

pressurization device and an on-line computer system which issues commands for the effective control of the pressurization device.

However, the references do not teach tables used to determine cutpoint incorporating time of year (affecting fuel volatility) into the decision cutpoint.

The specification explains that time of year is a factor based on seasonal variations in fuel formulation effecting volatility (also known as Reid vapor pressure or RVP). It is known that such seasonal fuel formulation is undertaken by fuel suppliers in order to ensure a level of engine startability and driveability even at low temperatures common in the cold months.

Reddy (US Patent 5,884,610) teaches estimating RVP in the process of performing a pressure based leak test of vehicle fuel system. However, Reddy merely uses the estimation in determining whether a test may be considered valid, not in the test criterion itself.

Huls (US Patent 5,878,727) teaches considering the effect of temperature alone "irrespective of knowledge of the original RVP" which seems indeed to teach away from the instant invention.

Finally, Cook '529 recites that "when testing is conducted over a range of various conditions, correction factors may be used, such as by programming them into [a] computer". Cook '529 then immediately discusses a graph of fuel pressure increase as a function of time, temperature and RVP. However, Cook then only suggests inputs related only to temperature and tank level, not RVP. Cook alternatively suggests testing

for volatility alone as a calibration for subsequent leak pressure test which dispenses with the need for knowing the formulated RVP.

Matsumura (JP 05112399 A) teaches criteria including temperature and season (as it effects formulated vapor pressure) into a timing of a gas sensor period during which is judges or senses fuel vapor. However, this is not considered to be the same as the period used in a leak test as different principles of test are involved.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Nagaishi et al. (JP 05044532 A) teaches using season (as it relates to predictable vapor pressure) in the air/fuel ratio control of an engine.

Mattingly et al. (US Patent 6,679,302) teaches using season to formulate fuel with a certain vapor pressure.

Corkill (US Patent 6,164,123) teaches another prior art usage of lookup table for corrected leak test criteria (period, not pressure).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Charles D. Garber whose telephone number is (571) 272-2194. The examiner can normally be reached on 6:30 a.m. to 3:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron Williams can be reached on (571) 272-2208. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

cdg

A handwritten signature in black ink, appearing to be 'CDM' followed by a stylized flourish.